

USPTO Serial Number: 10/014,744
Nong Ye et al.
Reply to Office Action dated July 16, 2004

REMARKS

The Office Action objects to the dependency reference of claim 29. Applicant(s) have amended claim 29 to depend from claim 28.

Applicant(s) acknowledge the allowance of claim 2-7.

The Office Action rejects claim 1, 8-10, 13-16, 19-21, 26-27, and 30 under 35 U.S.C. 103 as being unpatentable over Austin in view of Sugimoto. Applicant(s) have amended the claims to more clearly distinguish over the cited prior art.

Claim 1, as amended, recites a method for classification of data comprising providing first data from a physical process, the first data including a class label associated with attributes of the first data, deriving a temporary artificial cluster from centroid coordinates of the first data associated with the class label, wherein the temporary artificial cluster has a class label different than the class label associated with the attributes of the first data, determining distance measures between the first data and a plurality of clusters which include the temporary artificial cluster, creating a real cluster in the plurality of clusters if the first data is closest to the temporary artificial cluster, identifying a closest match between second data and the plurality of clusters, and classifying the second data based on a class label of the closest match from the plurality of clusters.

Applicant(s) believe that neither Austin nor Sugimoto, taken singularly or in combination, teach or suggest deriving a temporary artificial cluster from centroid coordinates of the first data associated with the class label, wherein the temporary artificial cluster has a class label different than

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the class label associated with the attributes of the first data. The Office Action refers a passage in the Austin reference which states:

"coarse correction procedure previously described corresponds to a level-0 correction because the centroid of all uncorrected test cepstral vectors is simply the average of the vectors. The centroid is the point in the multi-dimensional space represented by the coordinates corresponding to the cepstral vector elements, and having coordinates that the arithmetic means of the coordinates of all points making up the cluster."

Applicant(s) respectfully traverse the notion that the above passage has any relationship to the claimed element, which states in part that the temporary artificial cluster from centroid coordinates of the first data has a class label different than the class label associated with the attributes of the first data. In the present application, there is disclosed and claimed two different attributes of the classification process: data points and temporary artificial (dummy) clusters. The data points originate from a physical process and are assigned a class label associated with attributes of the data. The temporary artificial clusters are not data points and in fact do not exist in the context of the physical process. The temporary artificial clusters by their name are temporary and artificial references used in the invention to classify data. Applicant(s)' temporary artificial clusters are separate and distinct from real data, which are created to assist in the classification process. In fact, the temporary artificial clusters may be removed after the training process, see paragraph [00059].

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The above passage from the Austin reference makes no mention of the use of any temporary artificial clusters. The concept of temporary artificial clusters is not to be found in any portion of the Austin reference. Moreover, Austin does not teach or suggest that any temporary artificial cluster would have a class label that is different than the class label associated with the attributes of the first data. The feature of having a class label that is different than the class label associated with the attributes of the first data is important because it causes the data to separate from the artificial cluster during the classification process. The artificial cluster having a class label that is different than the class label associated with the attributes of the data is fundamentally different than anything disclosed in Austin. In contrast, Applicant(s) assign the temporary artificial clusters a different class label to distinguish them from real data, see paragraph [00040]. Austin does not perform this step.

Applicant(s) acknowledge that the Sugimoto reference discloses determining distance measures.

However, since Austin fails to teach or suggest deriving a temporary artificial cluster from centroid coordinates of the first data associated with the class label, wherein the temporary artificial cluster has a class label different than the class label associated with the attributes of the first data, claim 1 is believed to patentably distinguish over the prior art references, taken singularly or in combination.

Claim 8, as amended, recites, in part, deriving an artificial cluster from centroid coordinates of the first data associated with the class label, wherein the artificial cluster has a class label different than the class label associated with

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the attributes of the first data to cause the first data to separate from the artificial cluster during the classification process. For similar reasons given above, claim 8 is believed to patentably distinguish over the Austin and Sugimoto references, taken singularly or in combination. More specifically, Austin fails to disclose deriving an artificial cluster from centroid coordinates of the first data associated with the class label, wherein the artificial cluster has a class label different than the class label associated with the attributes of the first data to cause the data to separate from the artificial cluster during the classification process. There is no artificial cluster in Austin, and no mention of assigning any artificial cluster a class label that is different than the class label associated with the attributes of the first data. The feature of giving the artificial cluster a class label that is different than the class label associated with the attributes of the data to cause the data to separate from the artificial cluster during the classification process is fundamentally different than anything disclosed in Austin. Claims 9-13 are believed to be in condition for allowance as each is dependent from an allowable base claim.

Claim 14 recites, in part, deriving a dummy cluster from centroid coordinates of the first data associated with the class label, wherein the dummy cluster has a class label different than the class label associated with the attributes of the first data. For similar reasons given above, claim 14 is believed to patentably distinguish over the Austin and Sugimoto references, taken singularly or in combination. Austin fails to disclose deriving a dummy cluster from centroid coordinates of the first data associated with the class label, wherein the dummy cluster

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has a class label different than the class label associated with the attributes of the first data. There is no dummy cluster in Austin, and no mention of assigning any dummy cluster a class label different than the class label associated with the attributes of the first data to cause the data to separate from the artificial cluster during the classification process, as discussed above. Claims 15-19 are believed to be in condition for allowance as each is dependent from an allowable base claim.

Claim 20, as amended, recites, in part, second instructions for deriving an artificial cluster from centroid coordinates of the first data associated with the class label, wherein the artificial cluster has a class label different than the class label associated with the attributes of the first data to cause the first data to separate from the dummy cluster during the classification process. For similar reasons given above, claim 20 is believed to patentably distinguish over the Austin and Sugimoto references, taken singularly or in combination. Austin fails to disclose second instructions for deriving an artificial cluster from centroid coordinates of the first data associated with the class label, wherein the artificial cluster has a class label different than the class label associated with the attributes of the first data to cause the data to separate from the artificial cluster during the classification process. There is no artificial cluster in Austin, and no mention of assigning any artificial cluster a class label different than the class label associated with the attributes of the first data to cause the data to separate from the artificial cluster during the classification process, as discussed above. Claims 21-24 are believed to be in condition for allowance as each is dependent from an allowable base claim.

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Claim 25 recites, in part, forming a dummy cluster having a class label different than the class label associated with the attributes of the first data. For similar reasons given above, claim 25 is believed to patentably distinguish over the Austin and Sugimoto references, taken singularly or in combination. Austin fails to disclose forming a dummy cluster having a class label different than the class label associated with the attributes of the first data. There is no dummy cluster in Austin, and no mention of assigning any dummy cluster a class label different than the class label associated with the attributes of the first data to cause the data to separate from the artificial cluster during the classification process, as discussed above. Claims 26-30 are believed to be in condition for allowance as each is dependent from an allowable base claim.

Applicant(s) have made an earnest attempt to place this application in condition for allowance. In light of the remarks and/or amendments set forth above, Applicant(s) respectfully request reconsideration and allowance of claims 1 and 8-30. If there are matters that can be discussed by telephone to further the prosecution of the Application, Applicant(s) invite the Examiner to call the undersigned attorney at the Examiner's convenience.

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The Commissioner is authorized to charge any fees due in connection with this filing and during the pendency of this application to Deposit Account No. 17-0055.

Respectfully submitted,
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